

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace, without prejudice, all prior versions and listing of claims in the application:

1. (Currently Amended) A method of reducing an amount of a constituent in tobacco, said method comprising the steps of:

(a) providing a vessel containing said tobacco comprising said constituent;

(b) contacting said tobacco with a subcritical fluid consisting of carbon dioxide or a hydrocarbon under conditions so that said amount of said constituent dissolves in said subcritical fluid, wherein said subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is ethane at 0-30°C and 500-2000 psi; said subcritical fluid is propane at 0-50°C and 100-2000 psi and the tobacco of step (a) has a moisture content of at least 30%; or said subcritical fluid is Freon 22 at 0-50°C and 100-2000 psi; or said subcritical fluid is butane and the tobacco of step (a) has a moisture content of at least 30%; and

(c) removing said subcritical fluid from said vessel;

~~wherein said tobacco in step (a) has a moisture content of at least 10%;~~

~~wherein step (b) occurs at 0-24°C and 1000-2200 psi for carbon dioxide; said hydrocarbon is selected from ethane, propane at 0-50°C and 100-2000 psi, or butane; or said hydrocarbon is a compressed gas; or~~

~~wherein said tobacco having a reduced amount of said constituent has substantially the same taste and aroma of untreated tobacco or said flavor and aroma compounds removed in step (b) are redeposited in said tobacco after step (c);~~

thereby reducing the amount of said constituent in said tobacco.

2. (Currently Amended) A method of selectively reducing an amount of a secondary alkaloid relative to a primary alkaloid in tobacco, said method comprising the steps of:

(a) providing a vessel containing said tobacco comprising said secondary alkaloid and said primary alkaloid;

(b) contacting said tobacco with a subcritical fluid under conditions so that a greater amount of said secondary alkaloid relative to said primary alkaloid dissolves in said subcritical fluid, wherein said subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is ethane at 0-30°C and 500-2000 psi; said subcritical fluid is propane at 0-50°C and 100-2000 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is Freon 22 at 0-50°C and 100-2000 psi; or said subcritical fluid is butane and the tobacco of step (a) has a moisture content of at least 30%; and

(c) removing said subcritical fluid from said vessel, thereby selectively reducing the amount of said secondary alkaloid relative to said primary alkaloid in said tobacco.

3. (Currently Amended) A method of reducing an amount of a polycyclic aromatic hydrocarbon (PAH) in tobacco, said method comprising the steps of:

(a) providing a vessel containing said tobacco comprising said PAH;

(b) contacting said tobacco with a subcritical fluid under conditions so that said amount of said PAH dissolves in said subcritical fluid, wherein said subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is ethane at 0-30°C and 500-2000 psi; said subcritical fluid is propane at 0-50°C and 100-2000 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is Freon 22 at 0-50°C and 100-

2000 psi; or said subcritical fluid is butane and the tobacco of step (a) has a moisture content of at least 30%; and

(c) removing said subcritical fluid from said vessel;

~~wherein said tobacco in step (a) has a moisture content of at least 10%;~~

~~wherein said subcritical fluid is selected from carbon dioxide, ethane, propane, butane, Freon 22, or nitrous oxide, and wherein when said subcritical fluid is carbon dioxide, step (b) occurs at 0-24°C and 1000-2200 psi, and, when said subcritical fluid is propane, step (b) occurs at 0-50°C and 100-2000 psi, or wherein said subcritical fluid is a hydrocarbon that is a compressed gas; or~~

~~wherein said tobacco having a reduced amount of said PAH has substantially the same taste and aroma of untreated tobacco or said flavor and aroma compounds removed in step (b) are redeposited in said tobacco after step (c);~~

thereby reducing the amount of said PAH in said tobacco.

4. (Currently Amended) A method of selectively reducing an amount of a PAH relative to a primary alkaloid in tobacco, said method comprising the steps of:

(a) providing a vessel containing said tobacco comprising said PAH and said primary alkaloid;

(b) contacting said tobacco with a subcritical fluid under conditions so that a greater amount of said PAH relative to said primary alkaloid dissolves in said subcritical fluid, wherein said subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is ethane at 0-30°C and 500-2000 psi; said subcritical fluid is propane at 0-50°C and 100-2000 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is Freon 22 at 0-50°C and 100-2000 psi; or said subcritical fluid is butane and the tobacco of step (a) has a moisture content of at least 30%; and

(c) removing said subcritical fluid from the vessel,
thereby selectively reducing the amount of said PAH relative to said primary alkaloid in said tobacco.

5. (Currently Amended) A method of reducing an amount of a constituent in tobacco, said method comprising the steps of:

(a) providing a system comprising a plurality of connected vessels containing said tobacco comprising said constituent;

(b) contacting tobacco in a first vessel with a subcritical fluid under conditions so that said amount of said constituent dissolves in said subcritical fluid, wherein said subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is ethane at 0-30°C and 500-2000 psi; said subcritical fluid is propane at 0-50°C and 100-2000 psi and the tobacco of step (a) has a moisture content of at least 30%; said subcritical fluid is Freon 22 at 0-50°C and 100-2000 psi; or said subcritical fluid is butane and the tobacco of step (a) has a moisture content of at least 30%;

(c) removing said subcritical fluid from said first vessel; and

(d) directing said subcritical fluid to a second vessel;

~~wherein said tobacco in step (b) has a moisture content of at least 10%;~~
~~wherein step (b) occurs at 0-24°C and 1000-2200 psi for carbon dioxide; said hydrocarbon is selected from ethane, propane at 0-50°C and 100-2000 psi, or butane; or said hydrocarbon is a compressed gas; or~~

~~wherein said tobacco having a reduced amount of said constituent has substantially the same taste and aroma of untreated tobacco or said flavor and aroma compounds removed in step (b) are redeposited in said tobacco after step (e);~~
thereby reducing the amount of said constituent in said tobacco in said first vessel.

6. (Original) The method of claim 5, further comprising the steps, before, during, or after step (c) of:

- (i) isolating said first vessel from said system; and
- (ii) removing said tobacco from said first vessel.

7. (Original) The method of claim 5, wherein in step (d), said subcritical fluid is that of step (c).

8. (Original) The method of any of claims 1-5, wherein in step (b), said subcritical fluid is a liquid.

9. (Original) The method of claim 8, wherein said liquid is a compressed gas.

10. (Original) The method of any of claims 1-5, wherein in step (b), said subcritical fluid is a compressible gas.

11. (Previously Presented) The method of claim 1, further comprising, after step (c), the step of separating said constituent from said subcritical fluid.

12. (Original) The method of claim 2, further comprising, after step (c), the step of separating said secondary alkaloid from said subcritical fluid.

13. (Original) The method of claim 3 or 4, further comprising, after step (c), the step of separating said PAH from said subcritical fluid.

14. (Original) The method of claim 11, wherein said separating comprises flowing said fluid containing said constituent from step (c) into a separator vessel containing a substance capable of separating said constituent from said subcritical fluid.

15. (Original) The method of claim 14, wherein said substance comprises citric acid or magnesium silicate.

16. (Original) The method of claim 12, wherein said separating comprises flowing said fluid containing said secondary alkaloid from step (c) into a separator vessel containing a substance capable of separating said secondary alkaloid from said subcritical fluid.

17. (Original) The method of claim 16, wherein said substance comprises citric acid or magnesium silicate.

18. (Original) The method of claim 13, wherein said separating comprises flowing said fluid containing said PAH from step (c) into a separator vessel containing a substance capable of separating said PAH from said subcritical fluid.

19. (Original) The method of claim 11, wherein said separating comprises flowing said subcritical fluid containing said constituent from step (c) into a separator vessel, wherein said subcritical fluid undergoes a change in pressure or temperature and said constituent precipitates.

20. (Original) The method of claim 12, wherein said separating comprises flowing said subcritical fluid containing said secondary alkaloid from step (c) into a separator

vessel, wherein said subcritical fluid undergoes a change in pressure or temperature and said secondary alkaloid precipitates.

21. (Original) The method of claim 13, wherein said separating comprises flowing said subcritical fluid containing said PAH from step (c) into a separator vessel, wherein said subcritical fluid undergoes a change in pressure or temperature and said PAH precipitates.

22. (Original) The method of claim 11, further comprising, after said separating, the step of recirculating said subcritical fluid to said vessel.

23. (Previously Presented) The method of claim 12, further comprising, after said separating, the step of recirculating said subcritical fluid to said vessel.

24. (Previously Presented) The method of claim 13, further comprising, after said separating, the step of recirculating said subcritical fluid to said vessel.

25. (Currently Amended) The method of claim 22, wherein during said recirculating, flavor or aroma compounds removed in step (b) are deposited in said tobacco after step (c).

26. (Currently Amended) The method of claim 23, wherein during said recirculating, flavor or aroma compounds removed in step (b) are deposited in said tobacco after step (c).

27. (Currently Amended) The method of claim 24, wherein during said recirculating, flavor or aroma compounds removed in step (b) are deposited in said tobacco after step (c).

28. (Currently Amended) The method of any of claims 1-5-2-5, wherein said subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi, and the tobacco of step (a) has a moisture content of at least 30%~~selected from the group consisting of carbon dioxide, Freon 22, propane, ethane, nitrous oxide, and a combination thereof.~~

29. (Currently Amended) The method of any of claims 1-5, wherein the subcritical fluid is ethane at 0-30°C and 500-2000 psi or Freon 22 at 0-50°C and 100-2000 psi, and the tobacco of step (a) has a moisture content of at least 20% ~~moisture content of said tobacco in step (a) is at least 10%.~~

30. (Currently Amended) The method of claim 1, 3, 4, or of 5, wherein the pH of said tobacco in step (a) is between 4 and 9.

31. (Original) The method of claim 1 or 5, wherein said constituent is a PAH.

32. (Original) The method of claim 1 or 5, wherein said constituent is a secondary alkaloid.

33. (Original) Tobacco processed by the method of claim 1.

34. (Original) Tobacco processed by the method of claim 2.

35. (Original) Tobacco processed by the method of claim 3.
36. (Original) Tobacco processed by the method of claim 4.
37. (Original) Tobacco processed by the method of claim 5.
38. (Previously Presented) The method of claim 5, further comprising after step (c), the step of separating said constituent from said subcritical fluid.
39. (Previously Presented) The method of claim 38, wherein said second vessel in step (d) contains a substance capable of separating said constituent from said subcritical fluid.
40. (Previously Presented) The method of claim 39, wherein said substance comprises citric acid or magnesium silicate.
41. (Previously Presented) The method of claim 38, wherein said subcritical fluid in the second vessel undergoes a change in pressure or temperature and said constituent precipitates.
42. (Previously Presented) The method of claim 38, further comprising, after said separating, the step of recirculating said subcritical fluid to the first vessel.
43. (Previously Presented) The method of claim 42, wherein during said recirculating, flavor or aroma compounds removed in step (b) are redeposited in said tobacco after step (c).

44. (New) The method of claim 1, wherein the subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi, propane at 0-50°C and 100-2000 psi, or butane, and the tobacco of step (a) has a moisture content of at least 40%.

45. (New) The method of claim 44, wherein the subcritical fluid is carbon dioxide at 0-24°C and 1000-2200 psi, propane at 0-50°C and 100-2000 psi, or butane, and the tobacco of step (a) has a moisture content of at least 50%.

46. (New) The method of claim 1, wherein the subcritical fluid is ethane at 0-30°C and 500-2000 psi or Freon 22 at 0-50°C and 100-2000 psi, and the tobacco of step (a) has a moisture content of at least 30%.

47. (New) The method of claim 1, wherein the subcritical fluid is ethane at 0-30°C and 500-2000 psi or Freon 22 at 0-50°C and 100-2000 psi, and the tobacco of step (a) has a moisture content of at least 40%.

48. (New) A method of reducing an amount of a constituent in tobacco, said method comprising the steps of:

- (a) providing a vessel containing said tobacco comprising said constituent;
- (b) contacting said tobacco with a subcritical fluid consisting of carbon dioxide or a hydrocarbon under conditions so that said amount of said constituent dissolves in said subcritical fluid;
- (c) removing said subcritical fluid from said vessel, and
- (d) separating said constituent from the subcritical fluid in step (c), wherein said separating comprises flowing the subcritical fluid containing the constituent from step (c)

into a separator vessel containing a substance capable of separating the constituent from the subcritical fluid;

wherein said tobacco in step (a) has a moisture content of at least 10%;

wherein step (b) occurs at 0-24°C and 1000-2200 psi for carbon dioxide; said hydrocarbon is selected from ethane, propane at 0-50°C and 100-2000 psi, or butane; or said hydrocarbon is a compressed gas; or

wherein said tobacco having a reduced amount of said constituent has substantially the same taste and aroma of untreated tobacco or said flavor and aroma compounds removed in step (b) are redeposited in said tobacco after step (c);

thereby reducing the amount of said constituent in tobacco.

49. (New) The method of claim 48, wherein said substance comprises citric acid or magnesium silicate.

50. (New) A method of selectively reducing an amount of a secondary alkaloid relative to a primary alkaloid in tobacco, said method comprising the steps of:

(a) providing a vessel containing said tobacco comprising said secondary alkaloid and said primary alkaloid;

(b) contacting said tobacco with a subcritical fluid under conditions so that a greater amount of said secondary alkaloid relative to a said primary alkaloid dissolves in said subcritical fluid;

(c) removing said subcritical fluid from said vessel,

(d) separating said secondary alkaloid from the subcritical fluid in step (c), wherein said separating comprises flowing the subcritical fluid containing said secondary alkaloid from step (c) into a separator vessel containing a substance capable of separating

said secondary alkaloid from the subcritical fluid, wherein the substance comprises citric acid or magnesium silicate;

thereby selectively reducing the amount of said secondary alkaloid relative to said primary alkaloid in said tobacco.

51. (New) A method of reducing an amount of a constituent in tobacco, said method comprising the steps of:

(a) providing a vessel containing said tobacco comprising said constituent;

(b) contacting said tobacco with a subcritical fluid consisting of carbon dioxide or a hydrocarbon under conditions so that said amount of said constituent dissolves in said subcritical fluid;

(c) removing said subcritical fluid from said vessel; and

(d) separating said constituent from the subcritical fluid in step (c), wherein said separating comprises flowing the subcritical fluid containing said constituent from step (c) into a separator vessel, wherein the subcritical fluid undergoes a change in pressure or temperature and said constituent precipitates;

wherein said tobacco in step (a) has a moisture content of at least 10%;

wherein step (b) occurs at 0-24°C and 1000-2200 psi for carbon dioxide; said hydrocarbon is selected from ethane, propane at 0-50°C and 100-2000 psi, or butane; or said hydrocarbon is a compressed gas; or

wherein said tobacco having a reduced amount of said constituent has substantially the same taste and aroma of untreated tobacco or said flavor and aroma compounds removed in step (b) are redeposited in said tobacco after step (c);

thereby reducing the amount of said constituent in said tobacco.

52. (New) A method of reducing an amount of a constituent in tobacco, said method comprising the steps of:

(a) providing a system comprising a plurality of connected vessels containing tobacco comprising said constituent;

(b) contacting tobacco in a first vessel with a subcritical fluid under conditions so that said amount of said constituent dissolves in said subcritical fluid;

(c) removing said subcritical fluid from said first vessel;

(d) directing said subcritical fluid to a second vessel, and

(e) separating said constituent from the subcritical fluid in step (d);

wherein said tobacco in step (a) has a moisture content of at least 10%;

wherein step (b) occurs at 0-24°C and 1000-2200 psi for carbon dioxide; said hydrocarbon is selected from ethane, propane at 0-50°C and 100-2000 psi, or butane; or said hydrocarbon is a compressed gas; or

wherein said tobacco having a reduced amount of said constituent has substantially the same taste and aroma of untreated tobacco or said flavor and aroma compounds removed in step(b) are redeposited in said tobacco after step (c);

thereby removing the amount of said constituent in said tobacco in said first vessel.

53. (New) The method of claim 52, wherein said second vessel in step (e) contains a substance capable of separating said constituent from said subcritical fluid.

54. (New) The method of claim 53, wherein said substance comprises citric acid or magnesium silicate.

55. (New) The method of claim 52, wherein said subcritical fluid in the second vessel in step (e) undergoes a change in pressure or temperature and said constituent precipitates.

56. (New) The method of claim 52, further comprising, after step (e), the step of recirculating the subcritical fluid to the first vessel.

57. (New) The method of claim 56, wherein during said recirculating, flavor or aroma compounds removed in step (b) are redeposited in said tobacco after step (c).